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# The American Fertilizer

Vol. 97 AUGUST 15, 1942 No. 4

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*See Page 23*

...THE...

# AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 97 AUGUST 15, 1942 No. 4

# The Fertilizer Man in the New Industry*

By DR. CLARENCE POE

*President and Editor "The Progressive Farmer"*

THIS 1942 session of The National Fertilizer Association is held in a world radically different, tremendously different, from the world in which its 1941 annual session was held. We have come into a new day. "Old things have passed away; behold, all things have become new."

How far we have come in the last twelve months is indicated by just three sentences which I shall now repeat.

In England people are saying without contradiction a three-word sentence which nobody would have proclaimed confidently one short year ago—"*Imperialism is dead.*"

In America people are saying without contradiction a four-word sentence which nobody could have asserted confidently one short year ago—"*American isolation is dead.*"

And not only in America and England but in all the other United Nations of North America, South America, Europe, Asia and Australia, not only common people but statesmen and diplomats are uttering another tremendously significant sentence which only poets and prophets dared proclaim one short year ago: "*Freedom from want and freedom from fear must henceforth be recognized as a birthright of every child born on earth.*"

All of us, I am sure, will agree that these three sentences do indeed proclaim a revolution. Imperialism, which had been a cornerstone of the British Government, is gone. Isolation and neutrality, which had been cornerstones of American policy, are gone. "I am not my brother's keeper," which has been the cry of all selfish men from the time the First Murderer hid behind it, has at last been repudiated as a rule of international statesmanship.

Just how far we have come in the last twelve months may be illustrated not only by the declarations of the Atlantic Charter proclaimed to world-wide audiences by the President of the United States and the British Prime Minister last August but by half a dozen hardly less remarkable utterances of highly placed men these last thirty days. Let us begin with a quotation from the already famous 1942 Memorial Day address of the Hon. Sumner Welles, Under Secretary of State. I quote:

"Our victory must bring in its train the liberation of all peoples. Discrimination between peoples because of their race, creed, or color must be abolished. The age of imperialism is ended. The right of a *people* to their freedom must be recognized, as the . . . right of an *individual* to his freedom . . . In the pre-war world large numbers of people were unemployed; the living standards of millions pitifully low; it was a world of 'haves' and 'have nots.' . . . The problem of the post-war period is not primarily one of *production*. For the world can readily produce what mankind requires. The problem is rather one of *distribution and purchasing power*—of providing the mechanics whereby what the world produces may be fairly distributed among the nations of the world, and of providing the means whereby the people of the world may obtain the world's goods and services."

Exactly one week later, June 6, 1942, Mr, John G. Winant, our Ambassador to Britain. speaking at Durham, England, declared:

* Address delivered at the annual convention of The National Fertilizer Association, Hot Springs, Va., June 19, 1942.

"The world of today and tomorrow demands courage. We have the courage to defeat poverty as we are defeating fascism . . . When the war is done, the drive for tanks must become a drive for houses. The drive for food to prevent the enemy from starving us must become a drive for food to satisfy the needs of all the people of all countries. The drive for physical fitness in the forces must become a drive for bringing the death and sickness rates in the whole population down to the lowest possible level. The drive for man-power in the war must become a drive for employment to make freedom from want a living a reality."

And just two days later, on June 8th, in New York City, Vice-President Henry A. Wallace declared:

"The American peace, the peace of the common man, must be translated into freedom everywhere. America will not have made her contribution until nine out of ten of the adults of the world can read and write, until all the children of the world can have at least a pint of milk a day, until education brings with it such a sense of responsibility that all of the people of the world can be trusted to take part in democratic government."

**New Objectives**

Such in outline are some of the features of that new world of national and international policies, purposes, and objectives into which we have come since June, 1941 . . . a new world whose complete fulfillment will be long delayed, of course, but toward which the whole creation moves. And for most of what this new world signifies I am in hearty and even enthusiastic sympathy. I am glad imperialism is dead. I am glad the United States no longer thinks it can safely think only of itself and let the rest of the world go hang. I am glad there is a new emphasis on the uplift of the Common Man, a determination to see to it that every underdog of yesterday shall have a square deal tomorrow. I am glad that service and not exploitation would seem to be the world's keynote in the years just ahead.

Nevertheless, I do not wish to see Government take over all the functions of private business. I do not believe in Government ownership except where necessary to protect the public from monopoly. I believe in competition and that "the profit motive" under the spur of competition is an indispensable incentive to maximum efficiency, progress and improvement. Without competition and "the profit motive" I fear that retrogression and dry rot would set in in many fields of production and industry.

And certainly to all of us who hold these beliefs it was both gratifying and highly reassuring to have Mr. Sumner Welles proclaim in his Memorial Day address to which I have just referred:

"I believe that here in our own country we will continue to find the best expression for our own and the general good under a system which will give the greatest incentive and opportunity for individual enterprise. It is in such an environment that our citizens have made this country strong and great. Given sound national policies directed toward the benefit of the majority and not of the minority, and real security and equality of opportunity for all, reliance on the ingenuity, initiative, and enterprise of our citizens rather than on any form of bureaucratic management will in the future best assure the liberties and promote the material welfare of our people."

Somewhat more profanely but no less reassuringly spoke Assistant Attorney General Thurman Arnold the other day. He re-asserted, of course, the necessity for preventing monopoly but added:

"Capitalism dying? Hell, no! Capitalism is what we've got to fight for; it's wonderful. In spite of the finagling of some of the capitalists, it can give more good things to more people than any other system ever devised, when really allowed to work."

Why, you may ask, have I taken the trouble to quote at such length these declarations of Wallace, Welles, Winant, and Arnold? I have done so because these four men, in my opinion, have blueprinted the aspirations and motives which will guide not only the present national administration but the Government of our chief ally, Great Britain, in the years just ahead.

**The Powers of Science to be Used**

Next, what does it all add up to for you and me as business men? What does it mean for "The Fertilizer Man in the New Day"—the subject I have chosen for my address? The net meaning of it all, as I see it, is that at last the colossal powers of modern science, invention, and discovery must be harnessed to provide a genuine "Era of Abundance" such as has never before been possible—and that every business that wished to survive must be geared into this world-wide effort to give men freedom from want. The forces and groups that will rule America and England today and tomorrow are ready and willing to

preserve the capitalist system but only if business indeed puts "Service Above Self"—a slogan which thousands of business men have significantly adopted as the motto of one of their best known international organizations—and unless business also not only preaches but practices the companionate motto, "He Profits Most Who Serves Best." As *Business Week* in its latest issue said editorially: "The American principle of free enterprise cannot possibly succeed unless we all are willing to let it. If those who control the flow of capital withhold it from use where it will make possible higher efficiency, in an effort to foster monopoly and safeguard existing investments, they are not giving free enterprise a chance. If management tries to convert into profits an undue share of the increased earnings achieved by higher efficiency rather than pass them along through higher wages and lower prices, it is not letting free enterprise work."

**A Philippine Experience**

I think I might well illustrate the changed attitude which American business must now assume by mentioning an incident out of my own experience. Some thirty years ago on a trip around the world I visited the Philippine Islands. While there I was told the Filipinos had long used one-handled plows and that American plow manufacturers could not get the Filipino market because these manufacturers simply said, "Filipinos ought to use two-handled plows and that's the only kind we are going to offer," and let it go at that. The results had been, I was told, that other manufacturers, largely German I think, provided one-handled plows and most Filipinos kept on using them. Now exactly what should the American manufacturers have done? At that time, thirty years ago, the common answer would have been, "Make one-handled plows for the Filipinos and let them alone." But I do not believe that would be the answer today. Today we would say, I think, that American manufacturers should perhaps have made some one-handled plows but most of all they should have done something else—they should have interested themselves in the welfare of their customers by providing research work, extension work, publicity, and demonstrations that would have enabled the Filipinos to see for themselves that two-handled plows would handle larger acreages in less time. What I am trying to say is that the fertilizer man in the new day, like every other business man in the new day, must actively interest himself in providing the very maximum of service for every customer, large or small, high or low, with whom he deals. What I am trying to say is that we must think not only of dividends or salaries for our own pocketbooks but of gains for the pocketbook and living standards of every man to whom we sell. Not only when we come to life's end, but at the end of each day or month or year, we must have the satisfaction of saying or feeling as did old McAndrew, the fine, upstanding old Scotch engineer in Kipling's poem, who says in reverent and yet sincere pride in his prayer to the Almighty—

"I am o' service to my kind—
Ye wadna blame the tho't?"

Fortunately there are, I think, very few men in business anywhere who have a finer opportunity to see tangible and vivid blessings from their labors than the fertilizer man who sets out to serve humanity in this spirit. Few men have ever written anything in our English tongue which has had more general approval than the declaration of Jonathan Swift more than two centuries ago:

"And he gave it for his opinion, that whoever could make two ears of corn, or two blades of grass, to grow on a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

**Cooperation With U S D A**

The best type of fertilizer man of today is indeed a co-worker with the agricultural colleges, the United States Department of Agriculture, and the experiment stations of the South and of America. He can not only help make two blades of grass or two ears of corn grow where one grew before but he can feel that he is promoting the achievement of this result by providing for each crop or each soil type just the sort of plantfood which will give maximum production at minimum cost. He can take pride in the fact that through the efficiency and economy of the fertilizer industry he could sell fertilizer last year at 96 per cent of pre-war prices and this year 111 per cent when commodities generally averaged much higher than 96 last year and 111 this year. In the new worldwide effort to set up a new "Era of Abundance" for plain people everywhere, he can feel that he is indeed "o' service to his kind" if he takes our present cultivated acres and through scientifically chosen fertilizers furnishes to humanity the increased foods, feeds, and fibers it needs with less toil and expense than it would take to provide the increased food, feed, and fiber by

(Continued on page 22)

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Vol. 97 AUGUST 15, 1942 No. 4

## *Principal Articles in This Issue*

| | PAGE |
|---|---|
| THE FERTILIZER MAN IN THE NEW DAY | 5 |
| JUNE SUPERPHOSPHATE PRODUCTION | 8 |
| Use of AAA Materials in 1941 | 9 |
| ANALYSIS OF THE PRODUCTION OF ORDINARY SUPERPHOSPHATE IN THE UNITED STATES IN THE CALENDAR YEARS 1940 AND 1941 | 10 |
| Superphosphate Committee Considers Spent Acid Distribution | 12 |
| AAA Contracts Awarded | 12 |
| FERTILIZER MATERIALS MARKET: | |
| New York | 13 |
| Baltimore | 13 |
| Atlanta | 15 |
| Charleston | 15 |
| Chicago | 15 |
| Tennessee Phosphate | 16 |
| July Tax Tag Sales | 20 |

## June Superphosphate Production

Production of superphosphate in June was 27 per cent larger than in June, 1941, according to reports by producers to The National Fertilizer Association. This was the seventeenth consecutive month in which production was larger than in the corresponding month of the preceding year.

Production in June was much larger than in any other June for which records are available. Substantial increases over last year were reported by both the northern and southern areas. Production in June is usually

*Superphosphate Production, Shipments, and Stocks for June and July-June, 1942 and 1941*

Expressed throughout in equivalent tons of 16% A.P. A. Based on reports by acidulators to the National Fertilizer Association.†

| June | United States 1942 | 1941 |
|---|---|---|
| Stocks—First of month: | | |
| Bulk superphosphate | 669,115 | 655,227 |
| Base and mixed goods | 133,860 | 208,406 |
| Production: | | |
| Bulk superphosphate | 387,164 | 301,012 |
| Base and mixed goods | 2,917 | 6,895 |
| Total Production | 390,081 | 307,907 |
| Other Receipts* | 42,050 | 42,344 |
| Book Adjustments | —2,724 | —3,806 |
| Total Supply | 1,232,382 | 1,210,078 |
| Shipments: | | |
| Superphosphate: | | |
| To mixers | 126,238 | 139,421 |
| To other acidulators | 37,637 | 46,777 |
| To consumers, etc. | 61,771 | 41,171 |
| Total Superphosphate | 225,646 | 227,369 |
| Base and mixed goods | 40,590 | 44,840 |
| Total Shipments | 266,236 | 272,209 |
| Stocks—End of month: | | |
| Bulk superphosphate | 808,966 | 678,991 |
| Base and mixed goods | 157,180 | 258,878 |
| Total Stocks | 966,146 | 937,869 |

*Accumulated Production and Shipments for July-June*

| | 1941–42 | 1940–41 |
|---|---|---|
| Production: | | |
| Bulk superphosphate | 4,461,258 | 3,810,357 |
| Base and mixed goods | 124,277 | 118,793 |
| Total Production | 4,585,535 | 3,929,150 |
| Shipments: | | |
| Superphosphate: | | |
| To mixers | 1,594,574 | 1,449,176 |
| To other acidulators | 643,115 | 622,773 |
| To consumers, etc | 1,210,970 | 1,048,539 |
| Total Superphosphate | 3,448,659 | 3,120,488 |
| Based and mixed goods | 1,598,623 | 1,407,347 |
| Total Shipments | 5,047,282 | 4,527,835 |

†Represents approximately 85% of total production.
*Includes inter-company transfers.
Base includes wet and/or dry base.

less than in May, but this year there was a contra-seasonal rise.

Stocks increased seasonally in June, with upturns reported in both areas. Stocks of bulk superphosphate at the close of the month were considerably larger than a year earlier, but stocks of base and mixed goods were smaller.

Shipments in the fiscal year ended with June were well ahead of the preceding year, with increases taking place in all classes of shipments.

---

## Use of AAA Materials in 1941

War production strength of the nation's farms was increased last year by application of conservation materials far above those of any previous year, the U. S. Department of Agriculture has announced in releasing a summary of orders for superphosphate and liming materials filled during 1941 under the Agricultural Adjustment Agency program.

In 1941, farmers in 33 states received 7,292,737 tons of lime—more than twice the 1940 tonnage—as AAA grants of aid.

Cooperating farmers also used 504,576 tons of 20 per cent superphosphate or more than three times the amount used in the previous year, and 112,275 tons of triple superphosphate, somewhat less than the quantity received in 1940. The drop in the tonnage of triple superphosphate was due mainly to the diversion of supplies under Lend-Lease operations. These tonnage totals, furnished as AAA grants of aid, represent about 90 per cent of all available phosphate used by farmers under the 1941 conservation program.

As a result of the extensive use of conservation materials through this AAA program, the nation goes into its first year of maximum war production of essential farm products with greatly improved soil resources. Continued use of these practices will enable farmers to keep their land in shape to continue peak production of needed commodities throughout the war years and thus enable the United States to serve as the larder of the United Nations, AAA officials said.

Applications of AAA-supplied superphosphate were made in 38 states to build up phosphorus-deficient lands also used in the growing of soil-building crops. Spreading of both liming materials and superphosphate on pastureland is of particular value in increasing the ability of the pasture to support more units of animal life for a greater period thus bringing about increased meat and milk production.

Summaries of the distribution of superphosphate, by Regions and States, follow:

*Superphosphate Distributed Under the 1940 and 1941 AAA Programs*

| State and Region | Triple Superphosphate | | 20 Per Cent Superphosphate | |
|---|---|---|---|---|
| | 1940 Tons | 1941 Tons | 1940 Tons | 1941 Tons |
| Northeast | | | | |
| Maine | 4,914 | ..... | ..... | 13,424 |
| N. H. | 5,217 | 152 | ..... | 11,974 |
| Vt. | 6,293 | ..... | 7,281 | 41,899 |
| Mass. | 2,305 | ..... | ..... | 9,205 |
| R. I. | 343 | ..... | ..... | 1,264 |
| Conn. | 963 | 33 | 20 | 4,900 |
| N. Y. | .... | ..... | 20,937 | 57,671 |
| Pa. | 770 | ..... | 5,482 | 11,197 |
| Total | 20,805 | 185 | 33,720 | 151,534 |
| North Central | | | | |
| Ill. | 544 | 145 | ..... | 6,799 |
| Ind. | 2,274 | 190 | ..... | 6,576 |
| Iowa | 1,351 | 2,905 | ..... | 80 |
| Mich. | .... | 791 | ..... | 11,301 |
| Minn. | 180 | 3,590 | ..... | 4,728 |
| Mo. | 4,229 | 6,135 | ..... | 1,380 |
| Ohio | 2,488 | 325 | ..... | 14,571 |
| S. D. | .... | ..... | ..... | |
| Wis. | 4,153 | 8,461 | ..... | 5,001 |
| Total | 15,219 | 22,542 | ..... | 50,436 |
| East Central | | | | |
| Del. | ..... | ..... | ..... | 29 |
| Md. | 169 | 75 | 531 | 1,035 |
| Va. | 14,822 | 7,713 | 6,166 | 24,133 |
| W. Va. | 12,082 | 11,083 | 1,729 | 11,478 |
| N. C. | 5,074 | 3,268 | 4,919 | 15,704 |
| Ky. | 57,946 | 26,467 | 41,454 | 114,123 |
| Tenn. | 22,065 | 11,746 | 16,619 | 46,247 |
| Total | 112,158 | 60,352 | 71,418 | 212,749 |
| Southern | | | | |
| Ala. | 2,000 | ..... | 36,152 | 30,909 |
| Ark. | 12,873 | 16,887 | ..... | 1,306 |
| Fla. | 42 | ..... | 247 | 701 |
| Ga. | 187 | ..... | 17,801 | 24,158 |
| La. | 665 | 3,440 | ..... | 720 |
| Miss. | 2,306 | 400 | ..... | 6,523 |
| Okla. | 316 | ..... | ..... | 192 |
| S. C. | .... | ..... | 208 | 5,141 |
| Tex. | 228 | 1,905 | ..... | 168 |
| Total | 18,617 | 22,632 | 54,408 | 69,818 |
| Western | | | | |
| Ariz. | 112 | 188 | ..... | 119 |
| Ida. | .... | 1,530 | ..... | ..... |
| Kan. | .... | 1,933 | ..... | ..... |
| Ore. | 5,154 | 713 | ..... | 9,177 |
| Wash. | 4,935 | ..... | ..... | 10,743 |
| Utah | .... | 2,200 | ..... | ..... |
| Total | 10,201 | 6,564 | ..... | 20,039 |
| Grand Total | 177,000 | 112,275 | 159,546 | 504,576 |

# Analysis of the Production of Ordinary Superphosphate in the United States in the Calendar Years 1940 and 1941

By K. D. JACOB

*Bureau of Plant Industry, Beltsville, Md.*

(Continued from the August 1st issue)

### Production of Different Grades of Run-of-Pile Superphosphate

IN 1941 the United States produced 4,196,314 tons of run-of-pile ordinary superphosphate (Table 11). This figure includes the production of wet-mixed base, expressed as equivalent quantities of superphosphate. The available $P_2O_5$ in the material ranged from 18.00 to 20.50 per cent, and the weighted averages were 19.34 and 19.33 per cent in 1940 and 1941, respectively (Table 12). As wet-mixed base contains less $P_2O_5$ than does straight superphosphate, the average figures for superphosphate alone would be somewhat higher than the composite averages. Although similar data are not available for previous years, the average grade of run-of-pile superphosphate produced in 1940 and 1941 was undoubtedly as high, likely higher, than at any time in the history of the domestic industry. This is due to the increased use of higher grades of phosphate rock and, even more so, to the reduction in the moisture content of the superphosphate through the use of stronger sulphuric acid and the practice, at certain plants, of artificial drying of superphosphate, the last particularly in connection with the preparation of granular products.

Of the total tonnage of superphosphate produced in 1941 (basis 16 per cent material), 24.3 per cent contained 18.00–18.99 per cent available $P_2O_5$, and 49.9 per cent contained 19.00–19.99 per cent $P_2O_5$, whereas the output of material containing 20.00 and 20.50 per cent available $P_2O_5$ amounted to 25.8 per cent (Table 11). In both 1940 and 1941 the production of 20 per cent superphosphate (817,256 and 939,715 tons, respectively, basis 16 per cent material) was greater than that of any other individual analysis reported.

**Table 11**

*Production of Different Grades of Run-of-Pile Ordinary Superphosphate, Calendar Years 1940 and 1941*

| Available $P_2O_5$ in run-of-pile superphosphate[1] | | Plants | | Run-of-pile superphosphate | | Production[2] Equivalent 16 per cent superphosphate | | Fraction of total[3] | |
|---|---|---|---|---|---|---|---|---|---|
| Range | Individual grades | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 | 1940 | 1941 |
| Per cent | Per cent | Number | Number | Short tons | Short tons | Short tons | Short tons | Per cent | Per cent |
| 18.00–18.24 | 18.00, 18.10 | 11 | 11 | 165,300 | 150,350 | 186,199 | 169,341 | 4.1 | 3.4 |
| 18.25–18.49 | 18.30, 18.43 | 2 | 2 | 36,365 | 40,326 | 41,777 | 46,348 | 0.9 | 0.9 |
| 18.50–18.74 | 18.50, 18.53, 18.60, 18.61, 18.62, 18.66 | 12 | 12 | 305,073 | 346,316 | 353,609 | 401,376 | 7.8 | 7.9 |
| 18.75–18.99 | 18.75, 18.76, 18.80, 18.94, 18.96 | 28 | 28 | 509,215 | 518,941 | 597,801 | 609,160 | 13.2 | 12.1 |
| 18.00–18.99 | | 53 | 53 | 1,015,953 | 1,055,933 | 1,179,386 | 1,226,225 | 26.0 | 24.3 |
| 19.00–19.24 | 19.00, 19.04, 19.06, 19.17 | 36 | 35 | 761,865 | 913,066 | 906,177 | 1,085,555 | 20.0 | 21.4 |
| 19.25–19.49 | 19.25, 19.30, 19.36, 19.40, 19.46 | 17 | 19 | 413,523 | 514,912 | 498,801 | 620,943 | 11.0 | 12.3 |
| 19.50–19.74 | 19.50, 19.70 | 11 | 11 | 246,075 | 268,357 | 300,137 | 313,176 | 6.6 | 6.2 |
| 19.75–19.99 | 19.75, 19.80, 19.87, 19.95 | 7 | 7 | 331,812 | 407,209 | 411,514 | 504,884 | 9.1 | 10.0 |
| 19.00–19.99 | | 71 | 72 | 1,753,275 | 2,103,544 | 2,116,629 | 2,524,558 | 46.7 | 49.9 |
| 20.00 | 20.00 | 17 | 17 | 653,806 | 751,773 | 817,256 | 939,715 | 18.1 | 18.6 |
| 20.50 | 20.50 | 4 | 5 | 323,546 | 285,064 | 414,543 | 365,239 | 9.2 | 7.2 |
| 18.00–20.50 | | 145 | 147 | 3,746,580 | 4,196,314 | 4,527,814 | 5,055,737 | 100.0 | 100.0 |

[1] Average content of available $P_2O_5$ in annual production per plant.
[2] Including production of wet-mixed base, expressed as equivalent quantities of superphosphate.
[3] Based on equivalent 16 per cent superphosphate.

The nearest competitor was 19 per cent material, with respective productions of 699,921 and 798,687 tons on a 16 per cent basis. The 1941 production of material containing 19.25–19.49 per cent available $P_2O_5$ showed the greatest relative increase (24.5 per cent) over 1940. On the other hand, the outputs of 20.50 per cent superphosphate and of material containing 18.00–18.24 per cent $P_2O_5$ decreased 11.9 and 9.1 per cent, respectively, in 1941.

On a regional basis and excluding the undistributed States (California and Michigan), the average content of available $P_2O_5$ in the 1941 production of run-of-pile superphosphate was highest (19.84 per cent) in the Middle Atlantic States and lowest (19.01 per cent) in the Midwest (Table 12). The high average for the Middle Atlantic region results more from the production of large tonnages of low-moisture material than from the use of exceptionally high-grade phosphate rock.

**Table 12**

*Grades of Run-of-Pile Ordinary Superphosphate Produced in Calendar Years 1940 and 1941*

| Region and state | Available $P_2O_5$ in run-of-pile superphosphate | | |
|---|---|---|---|
| | Range[1] | Weighted average | |
| | | 1940 | 1941 |
| | Per cent | Per cent | Per cent |
| New England[2] | 19.06–20.00 | 19.28 | 19.32 |
| Middle Atlantic | 18.60–20.50 | 19.88 | 19.84 |
| Maryland | 18.60–20.50 | 20.02 | 19.96 |
| New Jersey | 18.75–20.50 | 19.48 | 19.51 |
| New York and Pennsylvania[3] | 18.96–20.00 | 19.55 | 19.61 |
| Southern | 18.00–20.50 | 19.13 | 19.16 |
| Alabama | 18.00–19.95 | 19.05 | 19.11 |
| Arkansas and Texas | 20.00–20.50 | 20.21 | 20.15 |
| Florida | 18.66–20.00 | 19.62 | 19.65 |
| Georgia | 18.00–20.50 | 19.01 | 19.08 |
| Louisiana | 18.75–19.80 | 19.35 | 19.36 |
| Mississippi | 18.00–20.00 | 19.21 | 19.31 |
| North Carolina | 18.00–20.00 | 19.30 | 19.23 |
| South Carolina | 18.00–20.00 | 19.13 | 19.21 |
| Tennessee | 18.50–20.00 | 18.83 | 18.84 |
| Virginia | 18.10–19.50 | 18.92 | 18.94 |
| Midwest[4] | 18.00–20.50 | 19.02 | 19.01 |
| Illinois | 18.50–19.50 | 19.16 | 19.15 |
| Indiana | 18.00–19.25 | 18.72 | 18.71 |
| Michigan[5] | ..... | ..... | ..... |
| Ohio | 18.00–20.50 | 19.03 | 19.03 |
| Undistributed[6] | 18.00–19.04 | 18.62 | 18.55 |
| United States | 18.00–20.50 | 19.34 | 19.33 |

[1] Range of average content of available $P_2O_5$ in annual production per plant.
[2] All the plants are in Massachusetts.
[3] Excluding one plant that produces wet-mixed base but not superphosphate.
[4] Except Michigan, which is included with undistributed States.
[5] Included with undistributed States.
[6] California and Michigan.

In recent years it has become increasingly difficult to obtain the desired quantities of high-grade Tennessee phosphate rock, with the result that the superphosphate industry in Tennessee and the Midwest, areas that are mostly dependent on Tennessee rock, has had to resort to the use of greater proportions of the lower grades of rock; this condition is largely responsible for the comparatively low content of available $P_2O_5$ in the run-of-pile superphosphate produced in the States served by the Tennessee deposits.

**Superphosphate Produced from Different Types and Grades of Phosphate Rock**

Excluding the output (64,600 tons in 1940 and 69,919 tons in 1941) in the undistributed States (California and Michigan), which used phosphate rock from Idaho, Florida, and Tennessee, 80.9 per cent of the 1941 production of ordinary superphosphate and wet-mixed base was from Florida rock, principally if not entirely land pebble, and the remainder from Tennessee brown-rock phosphate; the respective percentages in 1940 were 80.2 and 19.8 (Table 13). Although small quantities of superphosphate may have been made from bone, bone ash, spent bone black and other bone products, no plant reported the use of such materials as a regular practice.

As for many years, Florida rock was the only domestic mineral phosphate used for the manufacture of superphosphate in the New England and Middle Atlantic States in 1940 and 1941. In the South, 85.5 per cent of the superphosphate was made from Florida rock in 1940 and 86.6 per cent in 1941; in both years the remainder was made from Tennessee rock. With the exception of Tennessee, as mentioned in a preceding paragraph, only three plants in the South used Tennessee rock in 1941. Even in Tennessee there were three plants that used Florida rock; however, these three plants produced no more than 10 per cent of the Tennessee output or superphosphate in 1940 and 1941. Excluding the two Michigan plants, one of which used Florida rock and the other Tennessee rock, 79.7 per cent of the midwestern production of superphosphate was from Tennessee rock in 1940 and 79.9 per cent in 1941.

In 1941, only 1.1 per cent of the ordinary superphosphate and wet-mixed base produced in the United States was made from

[3] Bone phosphate of lime, a term used in the trade to designate the phosphorus content of natural phosphates in terms of tricalcium phosphate [$Ca_3(PO_4)_2$].

(Continued on page 26)

## Superphosphate Committee Considers Spent Acid Distribution

The Superphosphate and Sulphuric Acid Sub-committee of the Fertilizer Industry Advisory Committee met in Washington on July 31st. T. E. Milliman, of WPB, presided and made an opening statement that the Subcommittee meeting was called to obtain advice as to how best to distribute a considerable quantity of spent sulphuric acid soon to become available.

Mr. Blakemore, in charge of sulphuric acid in WPB, then described the situation. Beginning in October, spent sulphuric acid at the rate of 90,000 tons of 60° Bé. per annum will become available at Childersburg, Ala., and in December at the rate of 110,000 tons per annum at Chattanooga, Tenn.; at first no tank cars seemed available to move the acid, and acidulating plants at each place were contemplated to utilize the acid. He had just been advised by the Office of Defense Transportation that 130 tank cars would be made available. He suggested that distribution of the acid might be effected through open bidding or through the allotment of this acid on a percentage basis to the acidulators within a reasonable radius, in line with their last year's production. In this case he suggested for discussion a uniform delivered price. He stated it was not contemplated that any presently operating chamber plant would be forced to close down; that a study indicated that this acid could be absorbed in an average freight radius of $4.00, roughly taking in the territory including the Carolinas, Georgia, north Florida, Alabama, Mississippi, and Tennessee, comprising 80 acidulating plants.

Members of the subcommittee were asked individually for their recommendations as to the best way of handling the problem. Some favored allocation; others suggested that the members of the fertilizer industry be offered the opportunity to purchase this acid by open bidding. Representatives of USDA were asked to discuss any factors that might affect the territorial use of superphosphate. It was stated that the winter legume program was going through and that AAA expected to distribute 112,000 tons of superphosphate in the southeast this fall. The OPA representative spoke in favor of open bids for the acid as simplifying the price angle.

After considerable discussion, the individual members of the subcommittee all recommended that full information regarding the AAA program for superphosphate in that territory be furnished the superphosphate manufacturers there and that these manufacturers be afforded an opportunity to bid on the acid. In case sufficient bids were not received, the remainder of the acid should be allocated within the territory.

## AAA Contracts Awarded

The U. S. Department of Agriculture has awarded contracts for superphosphate and for an 0–14–14 phosphate-potash mixture, to be distributed to farmers in the AAA program. The superphosphate contracts were awarded to 34 fertilizer companies, the total purchases amounting to almost 550,000 tons. Most of the tonnage was for the 20 per cent material, with smaller amounts of 18 per cent and 19 per cent superphosphate being also purchased. The prices on the various allotments of the 20 per cent superphosphate ranged from $11.85 per ton from a company in Florida to $22.00 per ton on a relatively small amount purchased in the interior of New York State.

Contracts on the 0–14–14 mixture totalled about 98,000 tons which was divided among 22 fertilizer companies. The lowest price bid was $21.83½ per ton from a South Carolina firm and from this the prices of the contracts awarded ranged upward to $29.87 per ton in Minnesota.

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# FERTILIZER MATERIALS MARKET

## NEW YORK

**Scarcity of Chemical Nitrogen Booms Vegetable Meals but Cost Presents Problem. Supplies of Potash and Phosphates Deemed Adequate.**

*Exclusive Correspondence to "The American Fertilizer"*

NEW YORK, August 11, 1942.

### Sulphate of Ammonia

A new price for sulphate of ammonia has not as yet been announced, but in the meantime deliveries are being made against new contracts.

There will be a continued scarcity of chemical nitrogen and the manufacturers are looking around for oil meals to supplement the nitrogen content of their fertilizer. However, the cost of this material is in all cases much higher than the equivalent ammonia in chemical nitrogen and it will be difficult to use meals, with ceiling prices prevailing on the finished fertilizer.

### Potash

Many of the fertilizer manufacturers are still anxious to book additional quantities of muriate. A meeting was held in Washington last week, but with anticipated production, the market should be fairly well taken care of and there should be no necessity for allocation of this material.

### Triple Superphosphate

From present indications this material is fully booked for the first six months of 1943, with the probability that if the government ships as much as anticipated under the Lend Lease Program, an actual scarcity might be felt.

### Nitrate of Soda

Allocation continues in this material.

### Superphosphate

Unless there is some change, it is felt that supplies will be ample to provide the AAA with the quantities required by them for the continuation of their program and also to take care of the needs of the fertilizer industry.

## BALTIMORE

**Market Quiet with Short Supply of Most Materials. No Prices on Sulphate of Ammonia Announced to Date.**

*Exclusive Correspondence to "The American Fertilizer"*

BALTIMORE, August 11, 1942.

There have not been any new developments in the fertilizer situation during the past two weeks. Both liquid and mineral ammoniates will be scarce, due to war conditions.

*Organic Ammoniates.*—The market on feeding and fertilizer tankage continues firm at ceiling price of $6.00 per unit of nitrogen, f. o. b. shipping point, which takes this material out of the class of a fertilizer material.

*Nitrogenous Material.*—There are no offerings on the market and, due to scarcity of raw material, there will only be a limited tonnage available during the coming season.

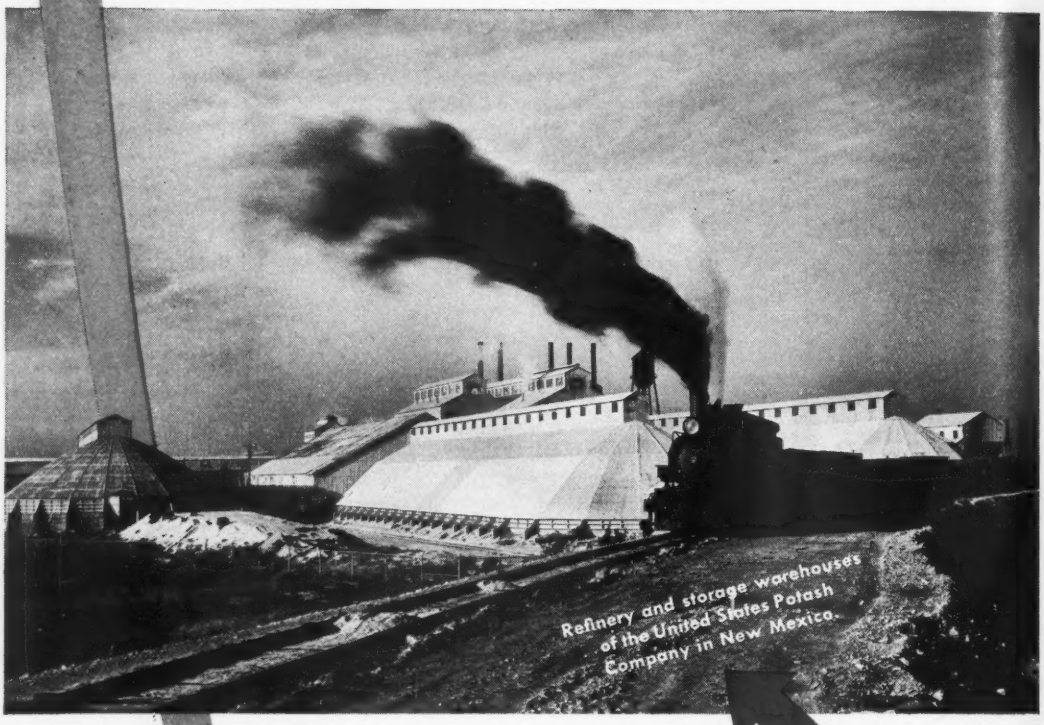
*Sulphate of Ammonia.*—Up to the present time there has still been no announcement made of prices for the coming season. In the meanwhile, deliveries are being allocated by the OPA to manufacturers based on last year's deliveries, with a view of conserving supplies for munition purposes.

*Nitrate of Soda.*—Deliveries of this material will likewise continue on allocation basis. In the meanwhile, current prices remain unchanged at $33.00 per ton of 2,000 pounds, in 100-pound bags, ex-warehouse, on such tonnage as is available for allocation.

*Fish Scrap.*—Due to restrictions of fishing territory the catch has been light. In the meantime, there have been no further sales, and unless the catch increases considerably producers may not be able to fill contracts previously booked on "if and when made" basis.

*Superphosphate.*—With Government orders recently placed aggregating 350,000 tons,

# PLANT HEALTH BEGINS HERE



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approximately half this tonnage was taken from Baltimore manufacturers. This, therefore, strengthens an already firm market which continues at ceiling price of $9.60 per ton of 2,000 pounds, basis 16 per cent for run-of-pile, and $10.10 for flat 16 per cent grade, both in bulk, f. o. b. producers' works, Baltimore.

*Bone Meal.*—There are practically no offerings or demand for either raw or steamed bone meal at the present time.

*Potash.*—There is nothing new in the situation, and buyers are taking deliveries against contracts already booked.

*Bags.*—There is nothing new in the bag situation as far as burlap is concerned, but the price of burlap and cotton bags for fertilizer purposes is so much higher than paper bags that during the coming season it is anticipated that the smallest amount of burlap will be used by fertilizer manufacturers in the history of the business.

## ATLANTA

**Still Waiting for Sulphate of Ammonia Prices. Interest in Organic Ammoniates Continues.**

*Exclusive Correspondence to "The American Fertilizer"*

ATLANTA, August 12, 1942.

The fertilizer manufacturers and mixers are still awaiting decision of OPA as to the price which will prevail on sulphate of ammonia for the current season. Bookings have been in progress since July 13th, at which time the trade received notification of their allotments from WPB.

The trade continues to manifest interest in organic ammoniates. Domestic nitrogenous, however, is not being quoted at the moment.

Small quantities of acidulated fish scrap have recently been sold at $4.25 ($5.16½ per unit N), and 50 cents, f. o. b. Carolina fish producing points, on an as-and-if-made basis.

Peanut meal testing 8.75 per cent ammonia is being quoted at $36.50 per ton, f. o. b. South Georgia mills.

Cottonseed meal, 18 per cent grade, rules somewhat easier in price since the Government cotton estimate issued on the 8th, and is being quoted at $35.00 per ton, f. o. b. South Georgia mill points.

## CHARLESTON

**Difficulties Experienced with Allocations. Organic Materials Showing Scarcity.**

*Exclusive Correspondence to "The American Fertilizer"*

CHARLESTON, August 10, 1942.

While the manufacturers have received their various allocations, they are experiencing quite a lot of difficulty in getting contracts for the amount of their allocations.

*Nitrogenous.*—Sellers of this material are still remaining out of the market.

*Blood.*—Due to shortage of killings at the stock yards, blood supply is getting scarce. Last quotations were around $5.70 per unit of ammonia ($6.93 per unit N), f. o. b. Chicago.

*Fish Meal.*—This material is getting more scarce. Ground scrap is priced at $72.50, f. o. b. Chesapeake Bay.

*Cottonseed Meal.*—The current price on the 8 per cent grade is $35.25, Memphis; $37.00, Atlanta.

## CHICAGO

**Routine Market in Fertilizer Organics with Short Supplies. Feed Materials Find Ready Sale When Available.**

*Exclusive Correspondence to "The American Fertilizer"*

CHICAGO, August 10, 1942.

Changes are still lacking in the western organic market, and trade is more or less routine. Few offerings are coming to light, and while inquiry in general is fairly steady, some

*Manufacturers' Sales Agents* for **DOMESTIC**

**Sulphate of Ammonia**

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of the trade are obviously waiting for the nitrogen situation to clear.

More steamed bone meal has come into the market, and prices of it are easier as compared with recent months.

Materials for feed are in scant supply, and whenever offerings are made, they are quickly absorbed at ceiling prices.

Nominal prices are as follows: High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N); standard grades crushed feeding tankage, $5.37 per unit ammonia ($6.53 per unit N); blood, $5.75 to $5.80 ($6.99 to $7.05 per unit N); dry rendered tankage, $1.21 per unit of protein, Chicago basis.

## TENNESSEE PHOSPHATE

**Rains Promise Record Crops. Mining and Shipping at Capacity Levels. No Shortage of Water Power to Date.**

*Exclusive Correspondence to "The American Fertilizer"*

COLUMBIA, TENN., August 10, 1942.

August rains have stimulated crop growth and record yields of both corn and tobacco are indicated. Tobacco is about 70 per cent cut and in the barn but many fields not yet harvested are profiting from the recent rains. In fact, a few fields cut early now have a second crop up to 12 inches in height.

Mining and construction work are proceeding as rapidly as obtainable supplies of building and repair materials will permit. On the whole, the mining industry in this region has fared as well in this regard as could be expected.

Grinding capacity is the present bottleneck and every mill in the field is operating at full capacity without being able to keep up with orders. Normally a reserve is accumulated during the early summer to meet the demands for August and September shipments but this year each month's output is taken just as soon as it is produced.

One aspect of the present situation is that farmers are realizing that ground phosphate rock can be applied at any time during the year whenever men and spreading equipment are available.

There is no prospect of power shortage from lack of water in the Tennessee river basin, but the season is approaching when this becomes evident each year. This must be kept in mind, as war industries of all kinds are making more urgent demands.

The phosphate mining industry is now engaged in purely altruistic operations, as in all cases whatever profits may arise from the rest of 1942 operations are bound to go for taxes. If the rumors and threats of strikes should happen to be supported by the labor board, the only sufferers will be all of us who depend upon taxes to support our fighting men, and the farmers who depend upon phosphate to raise the crops to win the war.

## CLASSIFIED ADVERTISEMENTS

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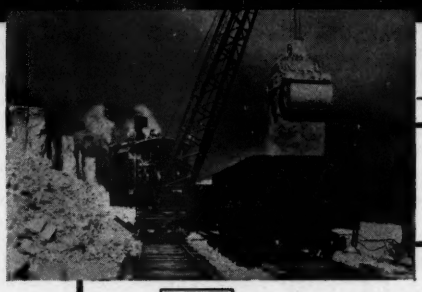

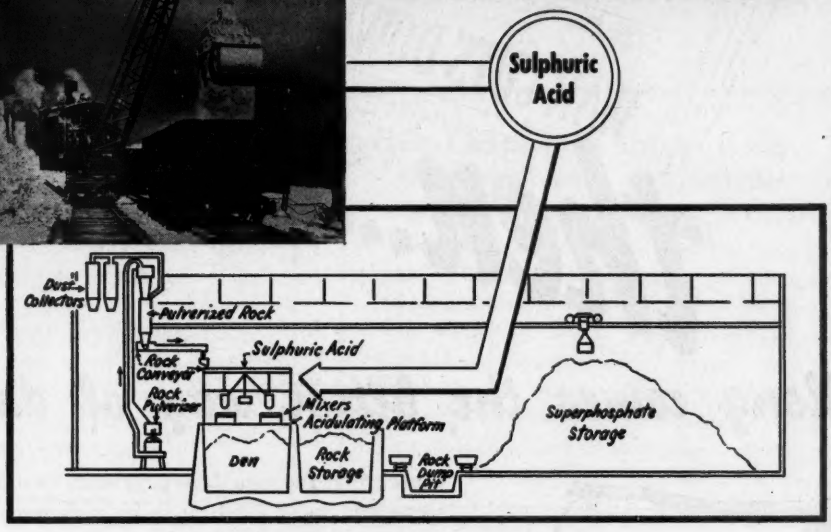


# FERTILIZERS

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## July Tax Tag Sales

Fertilizer tax tag sales in July in the 17 reporting States were 37 per cent larger than in July 1941. July sales are seasonally low, with sales for the month in recent years accounting for only 0.9 per cent of the year's total in the South and 1.2 per cent in the Midwest. Year to year comparisons for the month are not particularly significant.

Sales in the Southern States in the January-July period were practically the same this year as last, with increases in five States offset by declines in the other seven. Sales have been larger this year than in 1940 in all of the Southern States except South Carolina and Mississippi.

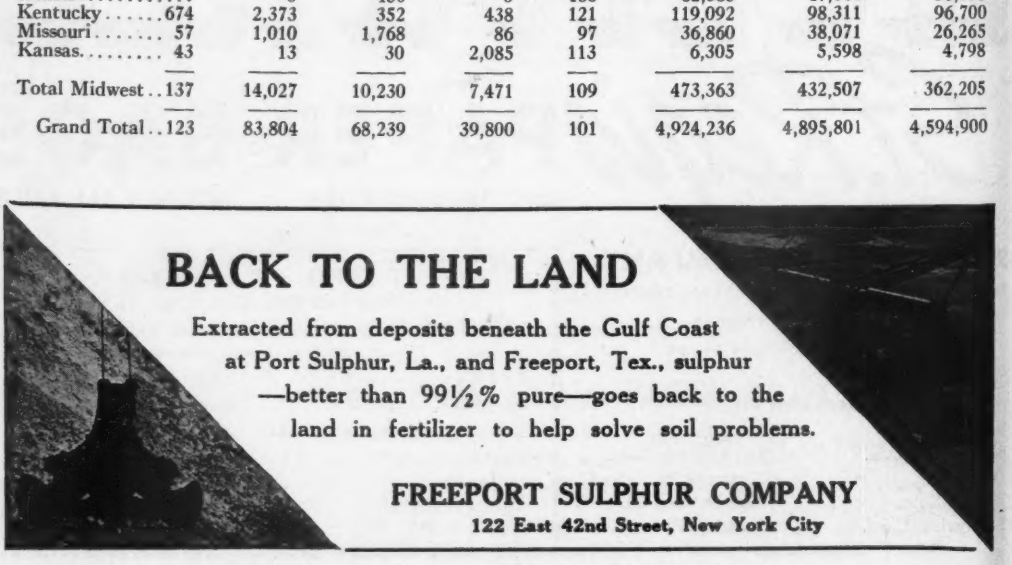
A moderate sales increase over last year has been reported by the midwestern group of States. Missouri is the only one of the five to show a decline; the largest increases have occurred in Illinois and Kentucky.

## Omission of Nitrogen from Grain Fertilizers

On July 11th the chemical branch of the War Production Board addressed a letter to fertilizer manufacturers doing business in the Middle Atlantic and Middle Western States, requesting that no mixed fertilizers containing chemical nitrogen be sold for use on small grains planted this fall. It was also requested that any such fertilizer containing chemical nitrogen which is now in the hands of agents be sold only for use on the 1942 vegetable crops.

**FERTILIZER TAX TAG SALES**

| State | July | | | | January–July | | |
|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | | 1942 | 1941 | 1940 |
| | Per Cent of '41 | Tons | Tons | Tons | Per Cent of '41 | Tons | Tons | Tons |
| Virginia | 97 | 7,701 | 7,933 | 4,041 | 105 | 322,868 | 306,246 | 295,376 |
| N. Carolina | 115 | 5,000 | 4,350 | 2,751 | 104 | 1,036,283 | 991,801 | 971,605 |
| S. Carolina | 271 | 16,010 | 5,898 | 2,150 | 91 | 607,284 | 667,207 | 636,654 |
| Georgia | 252 | 4,499 | 1,783 | 1,553 | 98 | 728,380 | 743,879 | 712,773 |
| Florida | 90 | 28,310 | 31,594 | 16,184 | 109 | 396,978 | 365,853 | 306,884 |
| Alabama | 183 | 3,750 | 2,050 | 1,400 | 98 | 554,450 | 562,900 | 560,100 |
| Mississippi | 60 | 966 | 1,600 | 750 | 89 | 281,067 | 316,392 | 292,595 |
| Tennessee | 108 | 1,433 | 1,331 | 1,805 | 118 | 143,955 | 122,250 | 121,648 |
| Arkansas | 22 | 108 | 500 | 100 | 114 | 127,958 | 112,500 | 93,450 |
| Louisiana | | 700 | 50 | 20 | 92 | 135,036 | 147,410 | 132,681 |
| Texas | 313 | 1,300 | 415 | 1,275 | 93 | 109,303 | 117,476 | 103,181 |
| Oklahoma | | 0 | 505 | 300 | 78 | 7,311 | 9,380 | 5,748 |
| Total South | 120 | 69,777 | 58,009 | 32,329 | 100 | 4,450,873 | 4,463,294 | 4,232,695 |
| Indiana | 139 | 10,631 | 7,630 | 4,862 | 102 | 248,721 | 243,526 | 198,244 |
| Illinois | | 0 | 450 | 0 | 133 | 62,385 | 47,001 | 36,198 |
| Kentucky | 674 | 2,373 | 352 | 438 | 121 | 119,092 | 98,311 | 96,700 |
| Missouri | 57 | 1,010 | 1,768 | 86 | 97 | 36,860 | 38,071 | 26,265 |
| Kansas | 43 | 13 | 30 | 2,085 | 113 | 6,305 | 5,598 | 4,798 |
| Total Midwest | 137 | 14,027 | 10,230 | 7,471 | 109 | 473,363 | 432,507 | 362,205 |
| Grand Total | 123 | 83,804 | 68,239 | 39,800 | 101 | 4,924,236 | 4,895,801 | 4,594,900 |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Port Hope, Ont., Can
St. Paul, Minnesota
Savannah, Ga.
Spartanburg, S. C.
Wilmington, N. C.

### THE FERTILIZER MAN IN THE NEW DAY

(Continued from page 7)

laboriously clearing and cultivating additional acres.

I should be uncandid, of course, if I did not acknowledge and say, as you would yourselves acknowledge, that among the makers, distributors and sellers of fertilizer in the past there have probably been as many too-selfish men as there have been in most other lines of business activity—probably no more and probably no less. And in the fertilizer industry, as in other industries, this overly selfish man must be eliminated as rapidly as possible, if the industry is to do its part both in saving "the profit motive" in American economic life and in serving Southern agriculture and our fellow human beings. I think, for example, of a time merchant who largely dominated the buying and selling and the whole commercial life of the little farm community in which I grew up and of "Black Bob," one of my grandfather's slaves, who lived on an adjoining farm when I first can remember. One fall when Black Bob went to the merchant to deliver his cotton, pay for his fertilizer, and settle up the year's accounts, the merchant's reply in actual substance if not in actual words was the traditional one among the colored people of the South at that time:

"Naught's a naught, figger's a figger—
All for the white man and none for the nigger."

Faced with this situation, old Bob said to the merchant, "Please, sir, jest let me have dis here cotton money 'twel tomorrow—and I'll fetch it all right back to you then—shore." "But why in the world do you want to carry the money home and bring it right back?" asked the merchant. "Because, I wants to sleep with just this much money just one night," was Bob's reply.

I mention this because old Bob was the type of a man in whom all too many of the fertilizer salesmen in my boyhood took no interest except to collect from him the price of the fertilizer plus an enormous "time price" charge. They were not concerned with helping him grow any crop other than cotton; not concerned about getting him to grow crops that would enrich his soil and keep it from washing away; not concerned about helping him advance by degrees into a "two-armed system of farming" as I have been calling it for some forty years. The result in tens of thousands of cases was that the ignorant tenant's land became too poor to provide either a living for him or any profit for the merchant. All over the South are deserted villages and "blighted areas" where wornout and eroded lands have pulled down farmer, merchant, doctor, lawyer into one common stagnation and decay. As a matter of fact, the identical village in which occurred the conversation between Black Bob and Merchant Russell has suffered precisely this fate.

#### Animal Production Needed

And now, finally, my mention of "two-armed farming" provides me with my last and probably most important declaration and appeal with reference to my subject, namely, "The Duties and Opportunities of the Fertilizer Man in Relation to Southern Agricultural Progress." There are, as I have been saying with what Shakespeare would have called "damnable iteration," just two great arms for producing agricultural wealth. One is *Plant Production*, or crops; the other is *Animal Production*—livestock, dairying and poultry. In practically all the richest farming states and countries plant production and animal production—crops and livestock—are almost equally balanced. For each $100 the farmer gets from crops he gets another $100 from livestock, dairying and poultry. This has not been the case in the South, however—which with a one-armed "crops only" system of farming has received only about $20 from animal production or livestock for each $100 from plant production or crops, and this is mainly why Southern farm income has averaged less than the farm income in other regions.

Nor is there anything magical or mysterious or hard to understand about this. It is a simple matter of income-producing days, the number of days a year in which the man on the farm can so occupy himself as to be

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*See Page 4*

producing some cash income. The remedy for low income Southern farmers can never be found in mere multiplication or diversification of crops, for no crop-diversification alone provides a large enough number of income-producing days from October to April. The farmer may so completely diversify his crops that he grows all three of our chief Southern cash crops—cotton, tobacco, and peanuts—but all three principally call for labor and provide income-producing days from April to October inclusive with almost no important opportunity for money-making in the intervening period.

**Two-Armed Farming**

The hope of the agricultural South lies in changing from this system of plant production only to a well-balanced system of two-armed farming—plant production plus animal production—which will provide income-producing labor 12 months in the year instead of 6 months and the fertilizer man must help bring about this change. The short-sighted fertilizer man may think at first that if the South turns more largely to pastures, livestock and soil-enriching crops, the profits of the fertilizer man will be reduced. And, of course, even if a slightly smaller number of men should be employed in the fertilizer industry, the larger good of the great mass of Southern farmers would still be our prime consideration. But I do not believe that the profits of the fertilizer men in the long run will be reduced. The one-crop system of the past, as I have already intimated, has all too often brought disaster alike to the farmer, the land, and the merchant or fertilizer dealer. Nobody can long prosper unless he has prosperous customers. In many sections today pastures, feed crops, and legumes are providing better markets for fertilizer than was ever provided by the negro tenant half scratching eroded land on a one-crop cotton plantation to eke out half a living. I am, of course, not trying to minimize the value of cotton. The world of tomorrow will need much cotton for as Roger W. Babson said only last week:

"Europe's textile hunger is colossal. The 360,000,000 Europeans (outside of Russia) depend on outside sources for cotton and wool. Blockade for three years has reduced them from riches to rags, post-war needs will be tremendous."

But while producing cotton alone may give the producer a living, cotton plus home-produced food and feed plus livestock may give him prosperity.

The ideals of the new "Era of Abundance" into which we have come therefore demand that the fertilizer man fit his business into the new program through which two-armed farming will enrich the South. In this new program fertilizers will indeed achieve a new definition and a new dignity. Fertilizers will become a highly profitable supplement to the soil fertility which good husbandry seeks to maintain rather than a less profitable substitute for soil fertility which poor farming lets steadily leach away. Instead of depending on selling fertilizer to a one-crop tenant buying his corn, hay and meat from the West and very often bankrupting himself, the time merchant and the fertilizer man of tomorrow will rejoice in selling to more prosperous cash customers whose beautiful pastures and "cattle on a thousand hills" are part of a program for giving Southern farmers profits from livestock, dairying and poultry as well as from all the Southern-grown cotton, tobacco and peanuts that world markets will take.

Such is my conclusion as to the subject with which I started out, "The Fertilizer Man in the New Day; His Duties and Opportunities in Relation to Southern Agricultural Progress and the National Welfare." If we would help preserve the present so-called capitalistic system and "the profit-motive" in America, every one of us whether in the fertilizer business, the publishing business or any other business, must put our houses in order and make sure that we sincerely conduct our affairs on the basis of "service above self; he profits most who serves best." We must play our full part in the effort to provide freedom from want and freedom from fear for all classes and all nations. At each day's end, each month's end, each year's end we must indeed be able to say reverently and yet sincerely as did old McAndrew in his prayer:

"I am o' service to my kind—
Ye wadna' blame the tho't?"

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## ANALYSIS OF THE PRODUCTION OF ORDINARY SUPERPHOSPHATE IN THE UNITED STATES IN THE CALENDAR YEARS 1940-1941

(Continued from page 11)

phosphate rock containing 68–69 per cent B. P. L.,[3] whereas 50.8 and 29.0 per cent was made from rocks containing 72–73 and 74–75 per cent B. P. L., respectively (Table 14). The respective figures for 1940 are close to those for 1941. The 1941 production of superphosphate from Tennessee rock containing 72–73 per cent B. P. L. amounted to 616,617 tons, or 64.6 per cent of the output of all superphosphate made from Tennessee rock except that used in Michigan; the production from these grades of Florida rock was 1,954,180 tons, or 48.5 per cent of the total from all Florida material.

### Production of Superphosphate from Rock Shipped by Different Methods of Transportation

In 1940, 53.2 per cent (2,410,327 tons) of the ordinary superphosphate and wet-mixed base produced in the United States was made from phosphate rock shipped by combinations of rail and water transportation, 40.6 per cent (1,837,528 tons) was made from rock shipped entirely by rail, and 6.2 per cent from rock transported by other means, namely, all-rail or rail-water, rail or truck, and belt conveyor (Table 16). The figures for 1940 represent the superphosphate produced from phosphate rock actually shipped by the indicated methods of transportation. However, this is not true of the figures for 1941, because of the shortage of boats and the consequent change from rail plus water to all-rail shipments for a number of plants, especially in the last half of the year. Thus, the 1941 figures represent the respective productions that would have been attained if the plants had continued throughout the year to receive rock by their customary methods of transportation. The actual figures for rail-water shipments in 1941 are smaller and for all-rail shipments correspondingly larger than those shown in Table 15.

With the exception of one Tennessee plant which is located so near the mine that the rock can be moved by belt conveyor, all shipments of Idaho and Tennessee phosphate rocks go from the mines to the superphosphate plants entirely by rail. In 1940, all the phosphate rock used in Arkansas, California, Illinois, and Indiana, and, on the basis of equivalent 16 per cent superphosphate produced, more than 75 per cent of that used in Alabama, Georgia, and Tennessee, respectively, and nearly 75 per cent of that used in Ohio, moved by all-rail. Also, all-rail shipments were made to Texas, Louisiana, Mississippi, Florida, North Carolina, South Carolina, and Virginia.

All the rail-water shipments of phosphate rock were from the Florida deposits. These shipments moved by rail from the mines to the ports and then by water directly, in most cases, to the consuming plants. In 1940, all the phosphate rock consumed in the New England and Middle Atlantic States and more than 85 per cent of that used in Virginia and Louisiana, respectively, moved by rail-water combinations. Also, substantial quantities of rock were shipped by such combinations to Mississippi, North Carolina (Wilmington and environs), South Carolina (Charleston), and Ohio, and smaller quantities to Texas, Alabama, Georgia (Savannah), and Michigan. The 1940 production of superphosphate from rock moving by rail-water combinations to Gulf Coast States totaled 199,847 tons, as compared to 2,079,246 tons from rock moving to Atlantic Coast States and 131,234 tons from that going to Great Lakes ports.

Under normal conditions Florida phosphate rock may move either by all-rail or by rail-water from the mines to certain plants at ports such as Mobile, Savannah, and Charleston. Shipments to Jacksonville customarily move either by all-rail or all-truck. Including a comparatively small production from Tennessee rock that moved by belt conveyor, the 1940 output of superphosphate from Florida rock shipped to plants that use these alternative methods of transportation totaled 279,959 tons of equivalent 16 per cent material.

(To be concluded in the next issue)

## Table 13

*Production of Ordinary Superphosphate from Florida and Tennessee Phosphate Rocks, Calendar Years 1940 and 1941*

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

| Region | Superphosphate produced from Florida phosphate rock | | | | Superphosphate produced from Tennessee phosphate rock | | | |
|---|---|---|---|---|---|---|---|---|
| | Plants | | Quantity | | Plants | | Quantity | |
| | 1940 Number | 1941 Number | 1940 Short tons | 1941 Short tons | 1940 Number | 1941 Number | 1940 Short tons | 1941 Short tons |
| New England | 3 | 3 | 79,217 | 103,401 | .. | .. | ..... | ..... |
| Middle Atlantic | [1]15 | [1]15 | 1,422,040 | 1,470,697 | .. | .. | ..... | ..... |
| Southern | 87 | [2]91 | 1,939,137 | 2,307,427 | [3]10 | [2]9 | 328,670 | 358,544 |
| Midwest[4] | 4 | 4 | 140,987 | 149,744 | 22 | 22 | 553,163 | 596,005 |
| Undistributed[5] | .. | .. | ..... | ..... | .. | .. | ..... | ..... |
| United States[6] | 109 | 113 | 3,581,381 | 4,031,269 | 32 | 31 | 881,833 | 954,549 |

[1] Including 1 plant which ceased operation in 1941.
[2] Including 1 plant which used both Florida and Tennessee rock.
[3] Including 1 plant which ceased operation in 1940.
[4] Except Michigan, which is included with undistributed States.
[5] California and Michigan; comprising 4 plants, of which 2 (California) used Idaho rock and 2 (Michigan) used Florida and Tennessee rocks, respectively. In 1940 and 1941, respectively, the total production of the 4 plants was equivalent to 64,600 and 69,919 short tons of 16 per cent superphosphate.
[6] Not including the data for undistributed States (California and Michigan), for which see footnote 5.

## Table 14

*Production of Ordinary Superphosphate from Different Grades of Phosphate Rock, Calendar Years 1940 and 1941*

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

| Grades of phosphate rock used, B. P. L. | | Plants | | Superphosphate produced | | Fraction of total | |
|---|---|---|---|---|---|---|---|
| Range Per cent | Individual Grades Per cent | 1940 Number | 1941 Number | 1940 Short tons | 1941 Short tons | 1940 Per cent | 1941 Per cent |
| 68.0–69.0 | 68, 69 | 3 | 3 | 61,776 | 54,740 | 1.4 | 1.1 |
| 70.0–71.9 | 70, 71, 71.5 | 13 | 13 | 285,445 | 339,490 | 6.3 | 6.7 |
| 72.0–73.0 | 72, 72.5, 72–73, 73 | 72 | 72 | 2,366,106 | 2,570,797 | 52.3 | 50.8 |
| 74.0–75.0 | 74, 74–75, 75 | 34 | 34 | 1,308,537 | 1,465,063 | 28.9 | 29.0 |
| 76.0–78.0 | 76, 77, 76–78 | 11 | 12 | 269,569 | 283,411 | 5.9 | 5.6 |
| Other grades | 72–75, 73–75, 73–76 | 12 | 13 | 236,381 | 342,236 | 5.2 | 6.8 |
| 68–78 | ..... | 145 | 147 | 4,527,814 | 5,055,737 | 100.0 | 100.0 |

## Table 15

*Production of Ordinary Superphosphate Classified by Customary Methods of Transporting Phosphate Rock from Mines to the Plants, Calendar Years 1940 and 1941*

(Includes all grades of ordinary superphosphate and wet-mixed base, expressed as equivalent 16 per cent superphosphate.)

| Region | Superphosphate product by plants customarily receiving phosphate rock by[1]— | | | | | |
|---|---|---|---|---|---|---|
| | All-rail[2] | | Rail-water[3] | | Other means[4] | |
| | 1940 Short tons | 1941 Short tons | 1940 Short tons | 1941 Short tons | 1940 Short tons | 1941 Short tons |
| New England | ..... | ..... | 79,217 | 103,401 | ..... | ..... |
| Middle Atlantic | ..... | ..... | 1,422,040 | 1,470,697 | ..... | ..... |
| Southern | 1,210,012 | 1,483,451 | 777,836 | 860,382 | 279,959 | 322,138 |
| Undistributed[5] | 627,516 | 687,245 | 131,234 | 128,423 | ..... | ..... |
| United States | 1,837,528 | 2,170,696 | 2,410,327 | 2,562,903 | 279,959 | 322,138 |

[1] The figures for 1940 represent the superphosphate produced from phosphate rock actually shipped by the indicated methods of transportation. This is not true of the figures for 1941, because of the shortage of boats and the consequent change from rail-water to all-rail shipments for a number of plants.
[2] 94 plants in 1940 and 96 in 1941.
[3] 43 plants.
[4] All-rail or rail-water, rail or truck, belt conveyor; 8 plants.
[5] Midwest (including Michigan) and California.

# BUYERS' GUIDE • A CLASSIFIED INDEX TO ALL THE ADVERTISERS IN "THE AMERICAN FERTILIZER"

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A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

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Link-Belt Company, Philadelphia, Chicago.

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**BURNERS—Oil**
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Phosphate Mining Co., The, New York City.
Wellmann, William E., Baltimore, Md.

**CHEMICAL PLANT CONSTRUCTION**
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**CHEMISTS AND ASSAYERS**
Gascoyne & Co., Baltimore, Md.
Shuey & Company, Inc., Savannah, Ga.
Stillwell & Gladding, New York City.
Wiley & Company, Baltimore, Md.

**CLUTCHES**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**CONCENTRATORS—Sulphuric Acid**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

**CONDITIONERS AND FILLERS**
American Limestone Co., Knoxville, Tenn.
Dickerson Co., The, Philadelphia, Pa.
Phosphate Mining Co., The, New York City.

**CONTACT ACID PLANTS**
Chemical Construction Corp., New York City.

**COPPER SULPHATE**
Tennessee Corporation, Atlanta, Ga.

**COTTONSEED PRODUCTS**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**CRANES AND DERRICKS**
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**CYANAMID**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**DENS—Superphosphate**
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A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**DISINTEGRATORS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**DRYERS—Direct Heat**
Sackett & Sons Co., The A. J., Baltimore, Md.

**DRIVES—Electric**
Link-Belt Company, Philadelphia, Chicago.

**DUMP CARS**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**DUST COLLECTING SYSTEMS**
Sackett & Sons Co., The A. J., Baltimore, Md.

**ELECTRIC MOTORS AND APPLIANCES**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

**ELEVATORS**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**ELEVATORS AND CONVEYORS—Portable**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**ENGINEERS—Chemical and Industrial**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**ENGINES—Steam**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

**EXCAVATORS AND DREDGES—Drag Line and Cableway**
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.

**FERTILIZER MANUFACTURERS**
American Agricultural Chemical Co., New York City.
American Cyanamid Company, New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Company, Columbus, Ohio.
International Minerals and Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**FISH SCRAP AND OIL**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

**FOUNDERS AND MACHINISTS**
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**GARBAGE TANKAGE**
Wellmann, William E., Baltimore, Md.

**GEARS—Machine Moulded and Cut**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**GEARS—Silent**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**GELATINE AND GLUE**
American Agricultural Chemical Co., New York City.

**GUANO**
Baker & Bro., H. J., New York City.

**HOISTS—Electric, Floor and Cage Operated, Portable**
Hayward Company, The, New York City.

**HOPPERS**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**IMPORTERS, EXPORTERS**
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

**IRON SULPHATE**
Tennessee Corporation, Atlanta, Ga.

**INSECTICIDES**
American Agricultural Chemical Co., New York City.

**LACING—Belt**
Sackett & Sons Co., The A. J., Baltimore, Md.

**LIMESTONE**
American Agricultural Chemical Co., New York City.
American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Wellmann, William E., Baltimore, Md.

**LOADERS—Car and Wagon, for Fertilizers**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Acid Making**
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Coal and Ash Handling**
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Elevating and Conveying**
Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Grinding and Pulverizing**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**MACHINERY—Power Transmission**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Pumping**
Atlanta Utility Works, East Point, Ga.
Duriron Co., Inc., The, Dayton, Ohio.

**MACHINERY—Tankage and Fish Scrap**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MAGNETS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MANGANESE SULPHATE**
McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

**MIXERS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**NITRATE OF SODA**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**NITRATE OVENS AND APPARATUS**
Chemical Construction Corp., New York City.

**NITROGEN SOLUTIONS**
Barrett Division, The, Allied Chemical & Dye Corp., New York City.

**NITROGENOUS ORGANIC MATERIAL**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**NOZZLES—Spray**
Monarch Mfg. Works, Philadelphia, Pa.

**PACKING—For Acid Towers**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

**PANS AND POTS**
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PHOSPHATE MINING PLANTS**
Chemical Construction Corp., New York City.

**PHOSPHATE ROCK**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Virginia–Carolina Chemical Corp. (Mining Dept.), Richmond, Va.
Wellmann, William E., Baltimore, Md.

**PIPE—Acid Resisting**
Duriron Co., Inc., The, Dayton, Ohio.

**PIPES—Chemical Stoneware**
Chemical Construction Corp., New York City.

**PIPES—Wooden**
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PLANT CONSTRUCTION—Fertilizer and Acid**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

**POTASH SALTS—Dealers and Brokers**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**POTASH SALTS—Manufacturers**
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
International Minerals & Chemical Corp., Chicago, Ill.
United States Potash Co., New York City.

**PULLEYS AND HANGERS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PUMPS—Acid-Resisting**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**PYRITES—Brokers**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Wellmann, William E., Baltimore, Md.

**QUARTZ**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

**RINGS—Sulphuric Acid Tower**
Chemical Construction Corp., New York City.

**ROUGH AMMONIATES**
Bradley & Baker, New York City.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**SCALES—Including Automatic Bagging**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SCRAPERS—Drag**
Hayward Company, The, New York City.

**SCREENS**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SEPARATORS—Air**
Sackett & Sons Co., The A. J., Baltimore, Md.

**SEPARATORS—Including Vibrating**
Sackett & Sons Co., The A. J., Baltimore, Md.

**SEPARATORS—Magnetic**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SHAFTING**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SHOVELS—Power**
Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corporation, Chicago, Ill., and Cedar Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

**SPRAYS—Acid Chambers**
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**SPROCKET WHEELS (See Chains and Sprockets)**

**STACKS**
Sackett & Sons Co., The A. J., Baltimore, Md.

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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Division, The, Allied Chemical & Dye Corp., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**SULPHUR**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

**SULPHURIC ACID**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.

**SULPHURIC ACID—Continued**
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE—Concentrated**
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International Minerals & Chemical Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

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Monarch Mfg. Works, Inc., Philadelphia, Pa.

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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Minerals & Chemical Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**TANKAGE—Garbage**
Huber & Company, New York City.

**TANKS**
Sackett & Sons, Co., The A. J., Baltimore, Md.

**TILE—Acid-Proof**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

**TOWERS—Acid and Absorption**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

**UNLOADERS—Car and Boat**
Hayward Company, The, New York City.
Sackett & Sons Co., The A. J., Baltimore, Md.

**UREA**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**UREA-AMMONIA LIQUOR**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**VALVES—Acid-Resisting**
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**WHEELBARROW (See Carts)**

**ZINC SULPHATE**
Tennessee Corporation, Atlanta, Ga.

# ALPHABETICAL LIST OF ADVERTISERS

For Classified Index, see pages 28 to 32, inclusive

American Agricultural Chemical Co., New York City....21
American Cyanamid Co., New York City...3
American Limestone Co., Knoxville, Tenn..16
American Potash and Chemical Corp., New York City....4, 23
Armour Fertilizer Works, Atlanta, Ga.....—
Ashcraft-Wilkinson Co., Atlanta, Ga. Front cover
Atlanta Utility Works, East Point, Ga....—

Bagpak, Inc., New York City.....—
Baker & Bro., H. J., New York City, Back cover
Barrett Division, Allied Chemical & Dye Corporation, New York City.....—
Bemis Bro. Bag Co, St. Louis, Mo.....—
Bradley & Baker, New York City.....12

Charlotte Chemical Lab., Charlotte, N. C..—
Chemical Construction Corp., New York City.....25
Chilean Nitrate Educational Bureau, New York City.....34

Dickerson Co., The, Philadelphia, Pa.....—
Dougherty, Jr., E., Philadelphia, Pa.....33
Du Pont de Nemours & Co., E. I., Wilmington, Del.....—
Duriron Company, Dayton, Ohio.....—

Fairlie, Andrew M., Atlanta, Ga.....29
Farmers Fertilizer Co., Columbus, Ohio...34
Freeport Sulphur Co., New York City....20

Gascoyne & Co., Inc., Baltimore, Md.....34

Hayward Company, The, New York City..34
Huber Co, L. W., New York City and Jersey City, N. J.....24
Hydrocarbon Products Co., New York City.15

International Minerals & Chemical Corporation, Chicago, Ill.....2d cover

Jeffrey Manufacturing Co., The, Columbus, Ohio.....—
Jett, Joseph C., Norfolk, Va.....—

Keim, Samuel D., Philadelphia, Pa.....33

Link-Belt Company, Chicago, Ill.....—

McIver & Son, Alex. M., Charleston, S. C..25

Monarch Mfg. Works, Inc., Philadelphia, Pa.....34

Pacific Coast Borax Co., New York City..—
Phosphate Mining Co., The, New York City.....25
Polk Co., R. L., Detroit, Mich.....—
Potash Co. of America, Baltimore, Md. 3d cover
Ruhm, H. D., Columbia, Tenn.....34

Sackett & Sons Co., The A. J., Baltimore, Md.....26
Schmaltz, Jos. H., Chicago, Ill.....34
Shuey & Company, Inc., Savannah, Ga...34
Smith-Rowland Co., Norfolk, Va.....—
Southern Phosphate Corp., New York City.—
Stedman's Foundry and Machine Works, Aurora, Ind.....22
Stillwell & Gladding, New York City.....—
St. Regis Paper Co., New York City...18-19
Synthetic Nitrogen Products Co., New York City.....—

Tennessee Corporation, Atlanta, Ga.....—
Texas Gulf Sulphur Co., New York City..17

U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.....23
United States Potash Co., New York City.14

Virginia-Carolina Chemical Corp., Mining Dept., Richmond, Va.....4

Wellmann, William E., Baltimore, Md....23
Wiley & Company, Inc., Baltimore, Md...34

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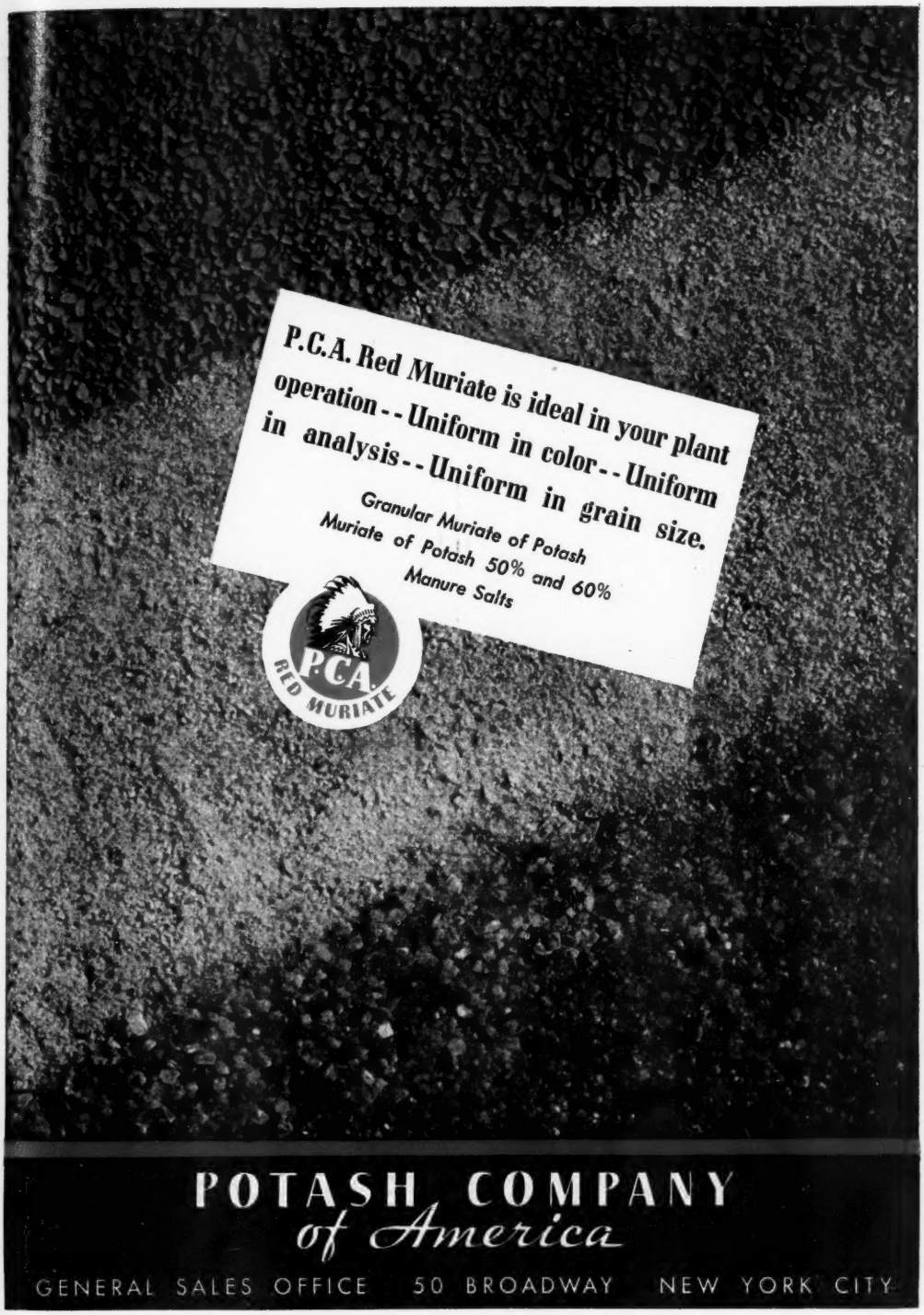
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